ECE 3300L.02 Lab 5

Group H
Mohamed Hamida
Sherwin Sathish

Lab Objective

- Configure the 7segdriver to allow 8 inputs for each digit of the display.
- Configure UPDOWN counter to count up and down starting from 0, including an enable and a reset (as switches)
- Convert UPDOWN decimal number to BCD using a BIN2BCD converter
- Top file to combine it all together

Code Breakdown

- SEGDRIVE.v
  - File to drive the 7 segment display
- UPDOWN.v
  - File to manage counting up and down using switches
- CLKMANAGER.v
  - FIles to create artificial clock
- Top.v
  - File used to bring it all together and link inputs and outputs
- Bin2bcd.v
  - File used to convert from binary to bcd using the double dabble algorithm.
- constraints.xdc
  - XDC file used to manage hardware connections to Nexys A7 board

Challenges

- Our biggest challenge this lab was figuring out how to output the 8 digits from the updown counter into the 7segdisplay. We couldn't figure out how to split the digits in terms of 1's, 10's, 100's, etc. We found some resources online and realized that we could use the double dabble algorithm which was a simple and cheap way of solving our issue,
- Our 7segdisplay gave issues with dealing with more than a few digits, so we spent a good amount of time debugging that as well

Contribution

7seg driver - Mohamed Hamida

Up-Down Counter - Sherwin Sathish

Clock Manager - Mohamed Hamida & Sherwin Sathish

Binary to BCD Converter - Mohamed Hamida

Top FIle - Mohamed Hamida and Sherwin Sathish

Lab Report - Sherwin Sathish

Powerpoint Slides - Mohamed Hamida

Demonstration - Sherwin Sathish

Project compiling and uploading - Mohamed Hamida